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THE AMERICAN ASSOCIATION.

The American Association for the Advancement of Science held its 44th meeting in Springfield, Mass., beginning with the Council meeting on August 28. The amendment of the Constitution which was proposed at the last meeting, whereby a new section was to be added,—J, Geography,—was not adopted by the Council owing to the insufficient number of papers on strictly geographical subjects. Papers which would have been assigned to this section were read in Section E or in Section H.

At the first general session, on August 29, the President-elect. Professor Edward W. Morley of Cleveland, was introduced and replied in earnest and appropriate remarks to the addresses of welcome from the Mayor of Springfield and the President of the Local Committee.

Dr. D. G. Brinton, the Retiring President of the Association, although unavoidably detained in Europe, forwarded his presidential address on "The Aims of Anthropology" to be read before the Association. Dr. Brinton designated anthropology as a branch of human learning which undertakes to make a study of man's nature, "its needs and its weaknesses, and how best to satisfy the one and amend the other." In the address the term anthropology was used in the sense adopted by this Association, that is, to include "the study of the whole of man, his psychical as well as his physical nature and the products of all his activities whether in the past or in the present." The study of man in relation to his physical traits, his ancestors, and his environment, might be called "biology as applied to the human species," and it forms the basis of the study of ethnography or the division of man into races or varieties. The author referred to the psychical traits of man as being even more important than the physical characteristics, in this study. The psychical or mental nature of man is shown in his works, his social and religious customs and in all his arts, whether for use or ornament. A comparative study of the results of man's psychical nature must be carried back to prehistoric times. "The most ancient is the simplest and the simplest is the most transparent and therefore the most instructive." Dr. Brinton stated that from the study of this branch of anthropology,—prehistoric archæology,—we have learned that the earliest man was the lowest man, the nearest to the brute creation, and have therefore disproved the theory that "the primal man had fallen from some high estate." He dwelt upon his belief in the "psychical unity" of man, "The parallelism of his development everywhere and in all times." He believes that "scarcely anything but his geographical environment, using that term in its broadest sense, seems to modify the monotony of his creations."

The author also drew attention to the importance of the study of folk-lore in reconstructing the story of the past.

The "immediate aims" of anthropology were summarized as follows: "The collection of accurate information about man and men, about the individual and the group as they exist now and as they have existed at any time in the past; here where we are and on every continent and island of the globe."

Dr. Brinton urged the importance of instruction and training on the part of those engaged in exploration and research in the various fields of anthropological science. He mentioned the fact that heretofore our universities and institutions of higher learning have given no attention to this line of instruction,—"how to observe, how to explore and collect in this branch."

The division of ethnology was defined as the "application of the principles of inductive philosophy to the products of man's faculties." "Its aim is to compare dispassionately all the acts and arts of man, his philosophies and religions, his social schemes and personal plans." While firmly believing in "culture identities," Dr. Brinton denies that all races are equally endowed. Differences of physical characters and of mental temperaments and inherited tendencies necessarily cause distinctions between the various ethnic groups; and a careful study of these peculiarities is one important aim of modern ethnology. This he considers the practical side of the science of anthropology, and it is only upon the results of this study that true legislation of a people can be founded. The science of anthropology has for its practical aim the increase of higher civilization, drawing upon the past as well as the present for a knowledge of the results and the forces which will best contribute to hasten the progress of civilization. Dr. Brinton believes that in the future, political economy, like history, will have to be rearranged on lines which this new science dictates. The final aim of anthropology he describes as offering to man "a knowledge of what he has been and is . . . revealing the future by the unwavering light of the past . . . conducting him by sure steps upward and onward to the highest summit which his nature is capable of attaining."

Seven Vice-presidents delivered addresses in their respective sections. Major Jed. Hotchkiss of Staunton, Virginia, Vice-president of Section E, spoke on the "Geological Survey of Virginia, 1835–1841, its history and influence in the development of geological science."

Mr. Frank Hamilton Cushing of Washington, Vice-president of Section H, read an extremely valuable paper on the "Dynasty of the Arrow." Mr. Cushing gave a sketch of his long and patient study of the arrow, beginning at the age of ten years, when a ploughman tossed him "a little blue flint arrow point and said, 'The Indians made that; it is one of their arrow heads.'" This little arrow point, he said, impressed him so deeply that it decided the purpose of his whole life. After making a collection of some hundreds of relics, he began a series of experiments to learn how the arrows were made. These experiments were described and illustrated during the lecture. While yet a boy he succeeded in making flint implements of the same form as those made by the primitive people; but he did not at the time know that he was the first white person to discover the method of making these crude implements. He attributes his success largely to the fact that he worked with the same rude tools and materials, and chanced to follow the same course that primitive man must necessarily have followed in fashioning his implements. From these experiments, continued for many years, and from his researches and his life with "an archaic people," Mr. Cushing was able to give the most interesting and concise account of the primitive method of making arrows. He narrated in detail the curious customs and superstitious ceremonies which attended each step of the process. The arrow, he said, is one of the most ancient things that men have made, much more ancient than the bow, and for ages it held remarkable sway over the destinies of man. Mr. Cushing then demonstrated how early man must have soon discovered the advantage of fastening his stone point into a handle, and thus have discovered the handled tool, and later the spear, the harpoon, the dart-flinger, and the bow. From his own experience, Mr. Cushing is convinced that palæolithic man of the French caves, who is supposed to have known no other art than that of rudely breaking a stone into shape by blows of other stones, could not have long remained in this rude state.

Professor F. W. Putnam, Permanent Secretary, spoke extempore in Section H on "Some Symbolic Carvings from the Mounds of Ohio, principally from the Turner and Hopewell groups," and gave certain conclusions drawn from long continued comparative study. To Mr. C. C. Willoughby, his assistant in the Peabody Museum, credit was given for valuable work in connection with this study during the past year. The colored diagrammatic drawings which illustrated the remarks were the work of Mr. Willoughby. One of the specimens chosen for illustration was a remarkably fine piece of incised work on the polished surface of a piece of human femur. An enlarged drawing plainly showed the motive of the carving which comprises human and animal faces, ovals, circles and other symbolic designs. At first glance a hopeless medley of lines, this carving finally resolves itself into several distinct masks and head-dresses together with the serpent and sun symbols. Professor Putnam considers it an interesting and significant fact that the designs on this carving are repeated in the forms of objects found in the same mound. Among these were many designs "cut from thin sheets of copper made by hammering nuggets of native copper," and several of them correspond with the designs in the carving. The most striking resemblance was found in one of the masks which, in the carving, is surmounted with a head-dress in the form of a deer's antlers, while in the mound was found a skeleton having over the skull a head-dress of copper and wood made in this same form with the branching antlers. Several other specimens were alluded to and illustrated. One on the arm bone of a man represents several animal heads interwoven in a curious manner, and over each head are the symbolic designs, ovals and circles, common to nearly all the carvings. These lines are arranged in such a fashion that portions of each head form part of another above or below, and the reverse of the carving shows still different heads. Another specimen shows the conventionalized serpent, and the bear totem as represented by the five claws. Others represent artistic conventionalized forms of birds and animals. A serpent cut out of mica was found to have symbols carved upon it which are identical with those upon the pieces of bone. Two duplicate carvings on circular portions of the parietal bones of a human skull, Professor Putnam considers really fine work; and Mr. Cushing stated that certain symbols in this carving represent the Zuñi gods of day and night.

Special reference was made to the stone known as the Cincinnati tablet, and Professor Putnam said that this specimen, although often described as a fraudulent piece of work, was undoubtedly genuine, since "several of the strange figures carved on the stone are of the conventionalized serpent form common in the mounds of Ohio and also agreeing essentially with the serpent head symbol on the old stone sculptures of Central America, which resemblances were not before known." This stone was also shown to have lines identical with those on a piece of copper found in the Hopewell group. In connection with the plumed serpent Professor Putnam and Mr. Willoughby have made many comparisons showing the modifications in the representations of the serpent in ancient art, from Ohio through the pueblo tribes of the southwest to Mexico and Central America.

While the primary object of his remarks was to "illustrate some of the peculiarities of the art of incised work of the older people of the Ohio valley, and to point out the close resemblance in the motive of the symbolism expressed in the carvings from this region with those of the southwest and even of Central America," Professor Putnam touched also on the question: Who were the builders of the ancient earth-works of the Ohio valley? He emphasized, first, the necessity of distinguishing between these old earth-works, and the mounds and village sites of later intrusive tribes from the northward and eastward. Second, he called attention to the fact that the elaborate and intricate designs and delicate workmanship of the carvings he had illustrated necessitated a high degree of skill, ingenuity and patience for their conception and execution, combined with a certain religious cult expressed by the symbols in the carvings, and he claimed that no such work had ever been done by the dolichocephalic tribes of the northern and eastern portions of the United States, nor had any such specimen ever been found in the burial mounds of later date. Third, a study of the skulls and skeletons found in the old mounds and earth-works shows that the builders closely resembled the people of the southwest and of Mexico and Central America, and differed from the long-headed stock of the east and north. His convictions, after more than twenty-five years of exploration and study, are that the builders of the old mounds and earth-works of the Ohio valley "were probably a branch of the great southwestern people represented by the ancient Mexicans, the builders of the old cities of Yucatan and Central America, and some of the pueblo tribes of Utah, Colorado, Arizona and New Mexico and adjoining portions of old Mexico." He believes that a few particular customs, ceremonies and phases of art, found among the living tribes to the northward and eastward of this great region, are simply survivals by contact of these tribes with the short-headed peoples of the southwest, of which stock he considers the old earth-work builders of the Ohio valley to have been one extreme branch.

The close relation between geography and anthropology was shown in a paper read in Section H by Dr. William Z. Ripley on "A Study in Anthropo-geography as a branch of Sociological Investigation." Colored statistical maps illustrated the geographical method of study, and showed the influence of geology and topography in affecting the distribution of the ethnic elements. Without reference to these maps an abstract of the paper would be unintelligible.

Mr. Gardner G. Hubbard's paper on Japan, read in Section E, began with a description of the physical geography of the islands forming the Empire of Japan. Reference was made to the unusual facilities for commerce afforded by the numerous inland waters, bays, gulfs and harbors. An account was given of the former and present races of Japan; and of the government of Japan from a period prior to 1850 down to the present constitutional form of government. The question was discussed, whether it is wise for the Japanese to adopt our form of government or modify their own by ours. Attention was drawn to the rapid growth of the mining and manufacturing interests of Japan and their probable effect on the manufactures and trade of England. "Japan" it was said, "can easily supply the Pacific Coast with manufactures, while the Pacific Coast and the Gulf States, through the Nicaragua canal, can supply fruits, provisions, grain and cotton to Japan, thus supplying a large outward and homeward commerce for our vessels plying the Pacific Ocean."

Mr. Horace C. Hovey presented in Section E an interesting paper on the Isles of Shoals. These islands, he stated, were discovered by Captain John Smith in 1614, and were originally called Smith's Isles. They are nine in number, and nine miles from Portsmouth light. Five belong to Maine and four to New Hampshire. In 1800 the group was surveyed, showing Appledore Island to have 350 acres; Star Island, 150 acres; Haley's Island, 100, and the others less area. There is a light-house on White Island. Haley and Malaga are joined by a sea wall, making a safe harbor. Mr. Hovey has made preliminary investigations on these islands with the intention of continuing the study in the future. Among his contributions to the knowledge of this group is the statement that Star, Haley, Cedar and Malaga islands seem to be steadily rising at the rate of six feet in fifty years, while the others of the group are either stationary or sinking. He called particular attention to a singular column on Appledore Island. "The column protrudes through biotite gneiss, softer than itself, and the gneiss lies between walls of white granitic rock harder than itself." The diameter is eleven feet, and the original height was probably from twenty-five to fifty feet. It is strictly hexagonal. He also described a striking dyke of porphyry on Cedar Island stretching from shore to shore; and stated that garnets from one to four inches in diameter are found on Appledore Island.

Professor William M. Davis gave one of the evening lectures tendered by the Association to the citizens of Springfield. His subject was, "Geographical Development of the Connecticut Valley," and the lecture was profusely illustrated with fine lantern pictures. He first described how the valley was formed, and called attention to the fact that the lowland, which extends from 15 to 20 miles in width at Hartford to that of a few miles, or even a mile or less at the north and south, is a very industrious region with thriving cities and towns like New Haven, Hartford, Springfield, and others, while in the upland to the east and west are found rural dwellings, old country roads, and often dilapidated and deserted farm houses. We find that the people of the upland send their children to the lowland for their education, and the census reports show that during the past few years the population of the upland has been slowly decreasing, while that of the lowland has been increasing. These facts show us how geographical features have their effect on the condition of man, physically, mentally and socially.

Professor Davis described the upland as an old mountain chain worn down to a comparatively even surface, with here and there a high peak like Monadnock, which has not been worn down as much as the other portions owing to the hardness of the rock. The valley, he said, means that the highland having been once reduced to the sea level has been raised up and the streams have cut through making the valleys. The valley is deep where the stream comes from an upland which is high; and the breadth of the valley depends upon the nature of the rock. The Connecticut Valley is very broad and deep because the sandstone through which the stream flows is soft and easily washed away.

The second evening lecture was given by Mr. Cornelius Van Brunt on "The Wild-flowers of the Connecticut valley." The primary object of this lecture was to exhibit the series of beautiful lantern slides made from photographs taken by Mr. Van Brunt and colored from nature by Mrs. Van Brunt. As each familiar flower appeared on the screen the lecturer made running remarks on its geographical distribution, habits and peculiarities.

The third public lecture was given by Professor A. S. Bickmore on the Illustrative Method of teaching Geography and Zoology at the American Museum of Natural History in New York City. This new method of "visual instruction" has been introduced into the public schools of New York State. It is given by means of lectures accompanied by pictorial illustrations. The sum of $25,000 a year for three years beginning with January 1, 1895, has been appropriated by the State of New York to provide the means of carrying on this instruction under the superintendence of Professor Bickmore of the American Museum, who gives his services without compensation to this good work.

The Springfield meeting, although not large in the number of attendants, was pronounced an important and successful one. The forty-fifth meeting of the Association will be held in Buffalo, beginning on Monday, August 24, 1896, under the presidency of Professor Edward D. Cope.